

REMARKS

Entry of this amendment, reconsideration of all grounds of objection and rejection, and allowance of all the pending claim are respectfully requested. Claim 5-8 and 12-14 are pending herein. Claims 5 and 12 are independent claims. Claim 7 has been amended to overcome the rejection thereto in the Office Action.

Claims 5-8 and 12-14 stand rejected under 35 USC § 112, first paragraph, as failing to comply with the enablement requirement. Applicant respectfully requests withdrawal of this ground of rejection for the reasons indicated herein below.

Applicant respectfully submits that the recitation regarding the SOA is fully enabled by the specification. A semiconductor optical amplifier described in the present invention performs generally the optical amplifying function. However, according to the physical properties, the semiconductor optical amplifier (SOA) can perform the optical detection function within the linear area, such as the laser diode (LD), and can perform the optical detection function within the nonlinear area, such as the photodiode (PD).

Especially, the bias current is controlled in order to perform selectively the operation of the above LD or PD. Herein, the description regarding FIG. 4 (particularly at page 15, lines 5 to page 16, line 7, and modulation by the SOA disclosed at page 15, lines 20-22) exemplifies the change of the operational area according to the above bias current.

In other words, on the gain characteristics curve line shown in FIG. 4, the SOA performs the optical modulation function within the linear area having the linear feature on the basis of the predetermined threshold current (T), whereas the SOA performs the

optical detector function within the absorption area having the nonlinear feature.

In addition, Applicant has attached hereto, U.S. Patent 5,289,480 entitled "Triple Function Semiconductor Laser Amplifier" by Koai *et al.*, which issued in 1994, and clearly states in the Abstract "a semiconductor laser amplifier that provides for simultaneous detection, amplification and modulation of an input optical signal" (emphasis in underlining added). FIG. 1 of Koai shows an SLA 110 (which is another term in the art for SOA, please see U.S. Patent 6,738,187 to DeCusatis *et al.* (the pertinent page provided therewith)). The symbol 110 in Koai *et al.* is known in the art and does not utilize any special connotation to depict simultaneous functions of an SOA. Please see column 2, lines 42-45 of Koai *et al.*

Accordingly, Applicant respectfully traverses the rejection in the Office Action wherein it is alleged that a person of ordinary skill in the art, from the block diagram in FIG. 3 showing an SOA 220, would not know or understand how to operate an Access Point according to the present claims, which includes an SOA having simultaneous functions.

Furthermore, in the response to previous arguments, the Office Action appeared to indicate that the use of the term semiconductor optical amplifier (SOA), without anything more, would not be enabling in the claims. However, Applicant respectfully submits U.S. 5,289,480, which is proof that it within the level of ordinary skill in the art for a simultaneous function SOA to be used without special reference or terminology.

In addition to the above-identified patent presented to show that a person of ordinary skill in the art would understand that a semiconductor optical amplifier can perform simultaneous multiple functions, and the documents Applicant has previously

provided documentation regarding SOAs and their capabilities, Applicant further introduces a paper written by Doctor M.J. Connelly, Senior Researcher in Electronic Engineering and Group Leader of the Optical Communications Research Group in the Department of Electronic and Computer Engineering, University of Limerick, Ireland.

The enclosed paper, entitled, 'Semiconductor Amplifiers and Their Applications' (Invited paper), *OPTOEL'03*, Madrid, Spain, July 2003, (also available on the Internet at http://www.uc3m.es/uc3m/dpto/IN/dpin08/Semiconductor_optical_amplifiers.pdf), which discloses SOAs (Dr. Connelly uses the term "SOA" and nothing more) used for modulation (please see page 3, sections 4a-4c) notes that SOAs can have at least four types of nonlinearity, including cross gain modulation (XGM), cross phase modulation (XPM), self-phase modulation (SPM) and four-wave mixing (FWM). The paper also discloses wavelength conversion (page 4), switching (Section 5b) and other functions. While Applicant respectfully submits that the present invention is not limited to the examples shown and discussed in the materials presented to the Examiner to traverse the rejection under 35 U.S.C. §112, first paragraph, Applicant has shown that a person of ordinary skill in the art is aware of multi-function simultaneous functioning SOAs, without further detailed explanation being required in the specification. Applicant respectfully submits that while a patent application must be enabling (and this application is enabling to a person of ordinary skill in the art), the application is written so as not to obscure the invention with background that is known in the art. Applicant's claimed invention is an Access Point that includes an SOA that can perform multi-functions simultaneously, and not an SOA itself.

Accordingly, Applicant has traversed the rejection under 35 U.S.C. §112, first



paragraph and respectfully requests withdrawal of this ground of rejection.

For all the foregoing reasons, it is respectfully submitted that all the present claims are patentable in view of the cited references. A Notice of Allowance is respectfully requested.

Should the Examiner deem that there are any issues which may be best resolved by telephone communication, please contact Applicant's undersign representative at the telephone number listed herein below.

Respectfully submitted,

A handwritten signature in black ink, appearing to be "S. Cha", written over a horizontal line.

Date: 7-16-07

By: Steve S. Cha
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Enclosures:

U.S. Patent 5,289,440
Page from U.S. Patent 6,738,187
Article by M.J. Connelly

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Steve Cha, Reg. No. 44,069
(Name of Registered Rep.)

A handwritten signature in black ink, appearing to be "S. Cha", written over a horizontal line.
(Signature and Date)